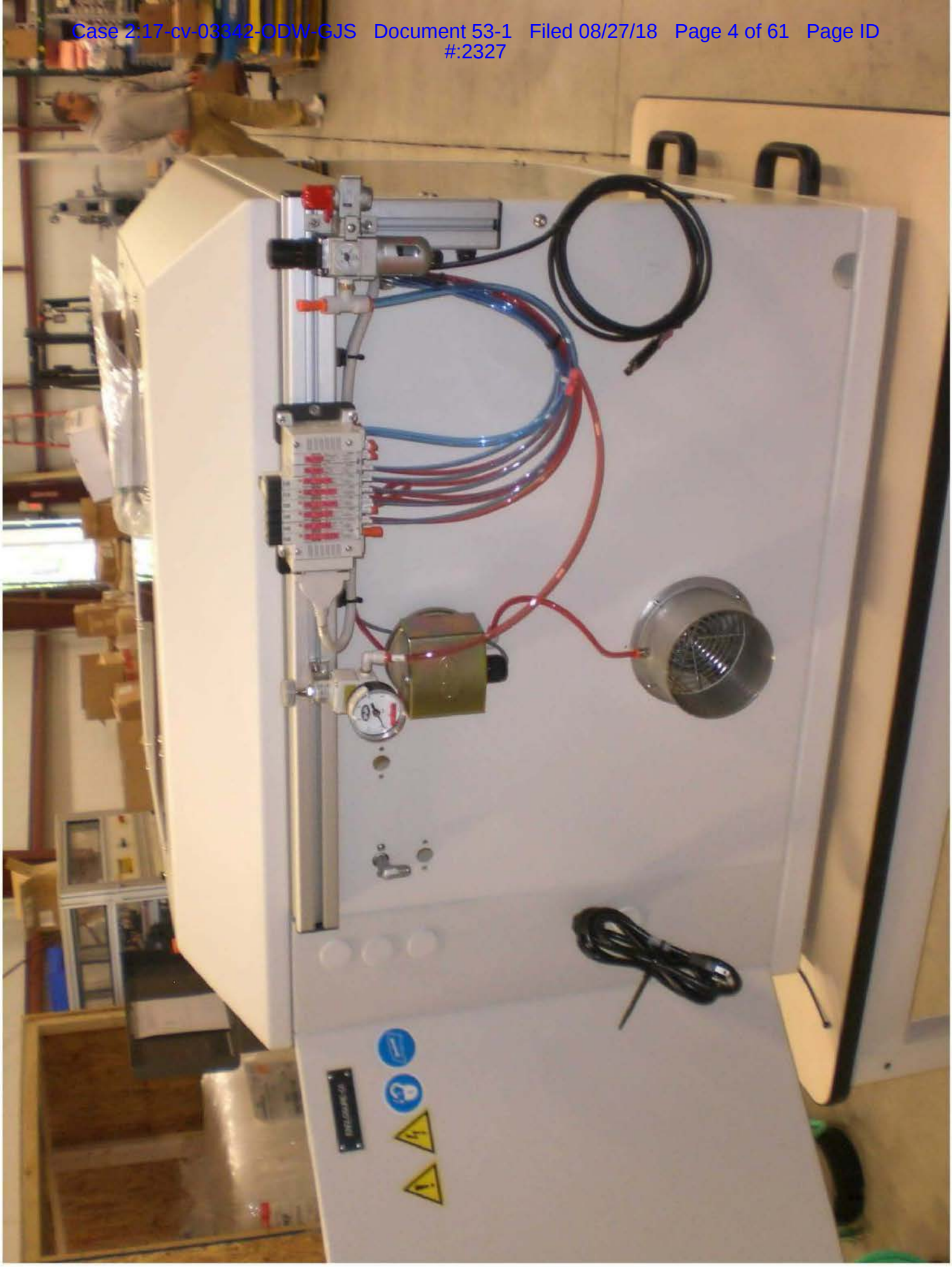
EXHIBIT 65

COLOR


MODEL:
PVA350
MAY 09
PVA
HALFMOON, NY 12065 USA
SERIAL NUM.: W3267
BOM NUM: 800-3158
VOLTS: 120VAC
AMPS: 12A
INTERRUPTING CAPACITY: 200kA
FREQ.: 60Hz
PHASE: 1
PSI: 80-100


DELL



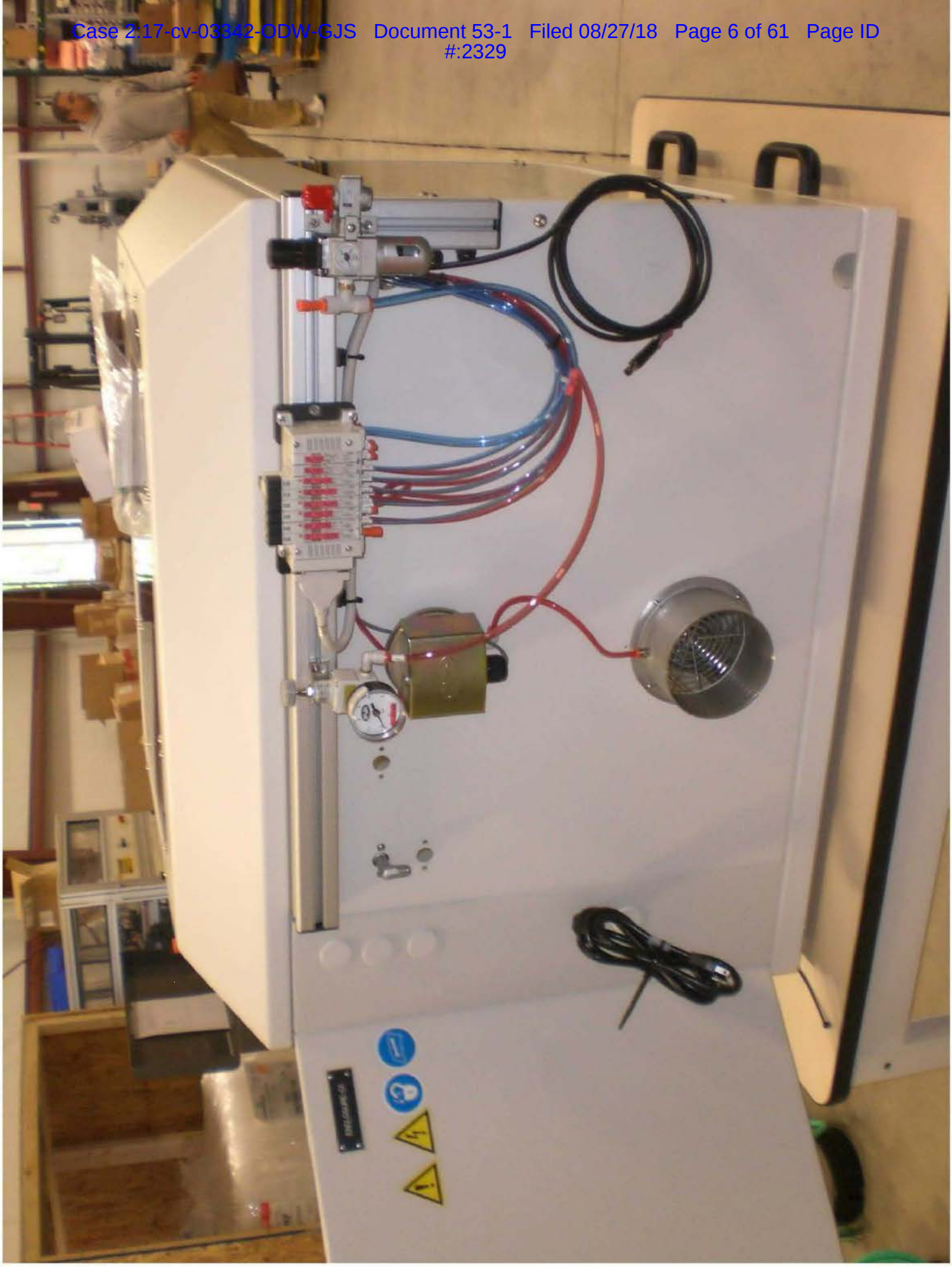


EXHIBIT 66

CONFIDENTIAL – REDACTED

SPACEX

PURCHASE ORDER

Bill To:
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250
Phone: (310) 363-6000 Fax: (310) 363-6001

Purchase Order Number: 49742

Issued Date: 4/20/2009
PO Revision Level:
Account Code: 1550

Issued To:
PVA - Precision Valve & Automation, Inc
15 Solar Drive
Halfmoon, NY 12065

Phone: 518.371.2684 Fax: 518.371.2688
Contact:

Ship To:
Space Exploration Technologies Corp.
1 Rocket Road
Avionics Department
Hawthorne, CA 90250
Contact E-Mail: pascale.roux@spacex.com
Phone #: 310-363-6336

VENDOR ID / VENDOR CUSTOMER #	VENDOR QUOTE # / VENDOR CONTACT NAME	TAX TERMS	F.O.B.
PVAINC	09-059-B	Not For Resale	ORIGIN

INVOICE TERMS	BUYER	SHIPPING METHOD	ORDER DATE	DATE REQ.	PROMISED DATE
50% IN ADVANCE, 30% A	PROUX	Bestway	4/20/2009	5/22/2009	

LINE	QTY	PART ID / MFG PART ID	UM	DESCRIPTION	UNIT	TOTAL
1	1	PVA350	EA	PVA350 Benchtop System Fully enclosed work area and doors with safety interlocks	[redacted]	[redacted]
2	1	PVA-CAMERA	EA	Programming Camera Slim programming camera with crosshair generator	[redacted]	[redacted]
3	1	PVA-PCB-FIX	EA	Adjustable Printed Circuit Board Fixture	[redacted]	[redacted]
4	1	FCS300-ES-M	EA	FCS300-ES Atomized Spray Valve Mount	[redacted]	[redacted]
5	1	FCM100-M	EA	FCM100 Micro Propulsion Valve Mount	[redacted]	[redacted]
6	1	PVA-2G	EA	2 Gallon Flip-Top Style Material Reservoir	[redacted]	[redacted]
7	1	INTALL-2	EA	Two Day Installation	[redacted]	[redacted]

ORDER SPECIFICATIONS:
avionics
NICK WONG

$5000.00 DISCOUNT APPLIED

ORDER TOTAL: [redacted]

Issued By: Pascale Roux
Approved By: ELON MUSK
Approved By: JEFF WARD
Requested By:

TERMS AND CONDITIONS: Commencing this order is accepting this P.O., and supplier agrees to all terms and conditions listed here.
(1) All applicable certificates to be sent with each shipment. Inspection Reports, C of C and Material Certs as applicable.

PVA\

SPACEX

PURCHASE ORDER

Bill To:
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250
Phone: (310) 363-6000 Fax: (310) 363-6001

Purchase Order Number: 49742

Issued Date: 4/20/2009
PO Revision Level:
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Issued To:
PVA - Precision Valve & Automation, Inc
15 Solar Drive
Halfmoon, NY 12065

Phone: 518.371.2684 Fax: 518.371.2688
Contact:

Ship To:
Space Exploration Technologies Corp.
1 Rocket Road
Avionics Department
Hawthorne, CA 90250
Contact E-Mail: pascale.roux@spacex.com
Phone #: 310-363-6336

VENDOR ID / VENDOR CUSTOMER # / VENDOR QUOTE # / VENDOR CONTACT NAME				TAX TERMS	F.O.B.
PVAINC		09-059-B		Not For Resale	ORIGIN
INVOICE TERMS	**BUYER**	**SHIPPING METHOD**	**ORDER DATE**	**DATE REQ.**	**PROMISED DATE**
50% IN ADVANCE, 30% A	PROUX	Bestway	4/20/2009	5/22/2009	

LINE	QTY	PART ID / *MFG PART ID*	UM	DESCRIPTION	UNIT	TOTAL

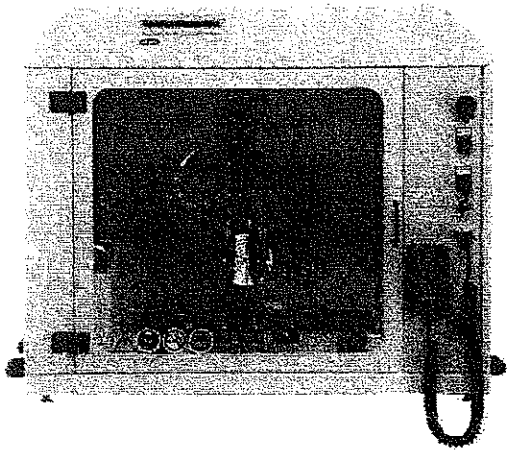
(2) Supplier acknowledges SPACEX, right of access to its facilities, product, and/or related quality records at any time, by SPACEX, its customer, or regulatory authorities in order to verify quality of products or work.
(3) All purchasing requirements shall be flowed down to sub-tier suppliers or subcontractors.
(4) Supplier to notify SPACEX immediately of unexpected anomalies, nonconformances, or changes to pre-approved processes.
(5) Supplier acknowledges it shall apply suitable corrective action when presented with SPACEX complaints or nonconformance reports.
(6) Suppliers will not use material purchased or certified by Western Titanium.
(7) Contains Sensitive Propnetary and Confidential information - Not for Further Distribution without the Written Consent of Space Exploration Technologies

PVA350 Robot Proposal

Reference #09-059

Nicholas Wong
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250
Nicholas.wong@spacex.com

February 25, 2009



15 Solar Drive
Halfmoon NY 12065
tel 518 371 2684
fx 518 371 2688
www.pva.net

PVA\

ODUCTION

, was founded in 1992 by president Anthony Hynes. Hynes began selling dispensing valves for automated and manual dispensing pplications out of his home prior to moving to Rensselaer Polytechnic Institute's (RPI) Incubator Center later that year. It was there that PVA began building XYZ robots to automate their growing valve technology. PVA's dispensing valve product line grew rapidly to include technology that proved superior for accurately applying conformal coating materials. In 1994, PVA debuted a selective conformal coating system that would later become the PVA2000. The PVA2000 improved on existing XYZ plotting systems by introducing a closed-loop servo controlled process that proved increasingly accurate and rugged.

PVA quickly began to claim local and national accolades by winning the 1995 National Incubator Tenant of the Year and the *Capital District Business Review*'s Small Business of the year in 1998. PVA claimed *SMT Magazine's* Vision Award for innovative valve technology and *Circuits Assembly's* prestigious Service Excellence Award for three consecutive years.

PVA is now headquartered in a 30,000 square foot facility in Halfmoon, New York with regional sites stationed throughout North America, Europe, and Asia. PVA continues to bring our customers the finest quality in automated and manual dispensing solutions while servicing well over 2000 modules at many of the world's largest manufacturers.

PVA continues to be owned and operated by founder Anthony Hynes.

PROGRAMMING

Each PVA robot is delivered with our proprietary Windows®-based programming software, PathMaster®. PathMaster is an intuitive point and click interface that allows programmers of various technical backgrounds to easily create paths of motion in minutes. PathMaster features numerous programming tools that are specifically tailored to coating and dispensing processes. Area fill functions, cut and paste array patterns, and line by line editing are but a few of the features you will enjoy.

PathMaster also comes with a free offline programming package that allows you to create motion at your desktop. Import CAD drawings to create bead or dot programs or utilize FastPath™ to quickly teach coating programs via digital images. Your purchase from PVA will include:

- PathMaster® CD with offline programming package
- Free lifetime software upgrades
- Unlimited free programming support via our call center (518-371-2684)

For more information on PathMaster®, visit http://www.pva.net/PDF%20Files/PathMaster%20Sell%20Sheet.pdf.
For more information on FastPath™ offline programming, visit http://www.pva.net/PDF%20Files/FastPath%20Sell%20Sheet.pdf.

CUSTOMER SUPPORT

At PVA we pride ourselves on providing every business partner with exceptional post sale support. *Circuits Assembly* magazine has recognized our commitment to this aim by awarding PVA with the prestigious Service Excellence Award for three consecutive years. PVA's support infrastructure is second to none in the industry with regional centers stationed throughout North America, Europe, and Asia providing immediate local response.

Your PVA order will include free initial process development at our facility prior to shipment and on-site installation and training at your facility upon request.* Advanced training at PVA's facility is always free for the life of your equipment.

PVA Customer Support
Pedro Flores
Director of Customer Service
(518) 371-2684 x235
pflores@pva.net

PVA Parts Orders
Kevin Durante
Inside Sales
(518) 371-2684 x240
kdurante@pva.net

For additional contact information for local PVA support managers, please visit http://www.pva.net/Worldwide%20Support.htm.

** PVA daily installation and/or training is billed at $850/day plus expenses.*

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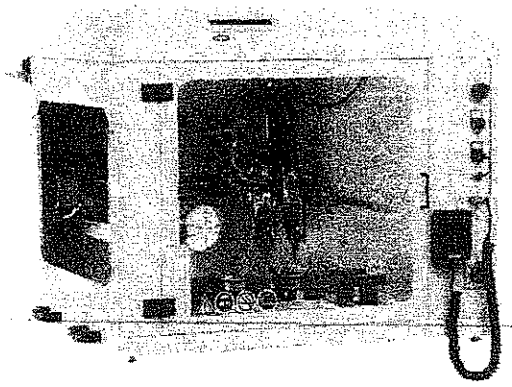
PVA350 DETAILS

The PVA350 is a programmable three or four-axis robot suitable for virtually any coating or adhesive dispensing application. The PVA350 employs a robust gantry system featuring precision ball screw slides driven by brushless DC servo motors. Every axis of motion features optical encoder feedback for a truly closed-loop process.



Specifications

X-Axis Stroke	400 mm (15.75")
Y-Axis Stroke	400 mm (15.75")
Z-Axis Stroke	100 mm (4")
Repeatability	0.025 mm (0.001")

Facilities

Power	120V-220V +/-10%, 50-60 Hz
Air	80 psi, dry unlubricated
Exhaust	300 cfm (coating applications only)

For more information on the PVA350 and to download a data sheet, visit http://www.pva.net/PDF%20Files/PVA350.pdf.

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
1	PVA350	**PVA350 Benchtop System** ▲ Fully enclosed work area and doors with safety interlocks	$ [redacted]	
	PVA-CAMERA	**Programming Camera** ▲ Slim programming camera with crosshair generator	$ [redacted]	
1	PVA-PCB-FIX	**Adjustable Printed Circuit Board Fixture**	$ [redacted]	[redacted]

VALVE MOUNT OPTIONS

The PVA350 can offer a variety of valve mount configurations to customize your process. Utilizing the robot's high payload capacity, multiple valves can be installed on the motion platform to process multiple assemblies simultaneously, apply multiple materials, or use multiple application heads to achieve the desired process results.

Valve	FCS300-ES	FC100-C	FCM100	FC100-MC	FCS300
Application Type	Atomized spray	Non-atomized	Micro propulsion	Bead, dot	Atomized spray
Suitable Coatings	All coating types	Solvent-based	All coating types	All coating types	All coating types
Pattern	Circular	Film	Bead, dot	Bead, dot	Circular / fan
Pattern Width	0.125" – 0.5"	0.25" – 0.5"	0.010" min	0.010" min	0.25" – 2"+

For more information on PVA's application heads and to download a data sheet, visit http://www.pva.net/Data%20Sheets.htm.

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
1	FCS300-ES-M	**FCS300-ES Atomized Spray Valve Mount**	$ [redacted]	$ [redacted]
	FC100-C-M	**FC100-C Non-Atomized Film Coat Mount**	$	
1	FCM100-M	**FCM100 Micro Propulsion Valve Mount**	$	$
	FC100-MC-M	**FC100-MC Front Closing Valve Mount**	$	
	FCS300-R-M	**FCS300 Atomized Spray Valve** ▲ Round spray cap (0.25" – 1")	$	
	FCS300-F-M	**FCS300 Atomized Spray Valve** ▲ Flat spray cap (0.75" – 2"+)	$	

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FOUR-AXIS MOTION

A programmable fourth axis option permits rotation of the dispense head in a 350° motion. With this option, an application valve can tilt at an adjustable angle and rotate. This is critical in instances where coating must be applied on all sides or underneath a component. This is an upgrade over more common single or dual tilt capabilities as these can only approach one or two sides of a component respectively. This is a fully controllable axis of motion with coordinated travel and acceleration and deceleration on the fly.

* PVA's fourth-axis configuration and rotational motion is protected under US patent number 6,132,809.

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
	PVA-4X	Optional Fourth Axis Upgrade	$ [redacted]	

MATERIAL RESERVOIRS

Material tanks are available in one, two, and ten-gallon sizes. One and two gallon tanks contain an oval opening that requires material to be poured into the reservoir. Two and ten gallon pressure vessels are available with an open top that permit an entire material bucket to be dropped into the container. Alternatively, disposable plastic liners are available for these tanks and allow for quick cleaning in applications that warrant pouring of material. One pound and one liter tanks allow an entire bottle to be placed into the reservoir so clean up is minimal.

Note: Additional tank sizes and pump ratios available by request

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
	PVA-10G	10 Gallon Top-Ported Material Reservoir	$ [redacted]	
1	PVA-2G	2 Gallon Flip-Top Style Material Reservoir	$ [redacted]	$ [redacted]
	PVA-1G	1 Gallon Flip-Top Style Material Reservoir	$ [redacted]	

OTHER MATERIAL HANDLING OPTIONS

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
	PVA-OP-11	Floating Low Level Material Sensor	$ [redacted]	
	PVA-OP-11-S	Digital Scale Low Level Material Sensor	$ [redacted]	

SPARE PARTS PACKAGE

PVA offers a kit of common spare parts for the PVA350 in standard package. This kit includes valve seals and needles, relays, cable assemblies, a brushless motor, and fuses. For a comprehensive list of components, please ask your PVA sales representative. A comprehensive, customized machine spare parts list will follow with your operating manual and will include all pertinent options selected for your process.

QTY	PART NUMBER	DESCRIPTION	UNIT PRICE	EXTENDED
	PVA350-SP	Standard PVA350™ Spare Parts Kit	$ [redacted]	

TOTAL PROJECT COST INCLUDING OPTIONS: $ [redacted]

WARRANTY

PVA warrants your order from manufacturing defects and labor for one year. Soft seal wearable items such as o-rings, needle tips, and material lines are not included in the warranty. Unlike many warranties, PVA does not shorten the warranty period if the system is utilized in multiple shifts per day.

TERMS & CONDITIONS

PAYMENT
50% down, 30% upon successful test at PVA and prior to shipment, 20% net 30

DELIVERY
7 weeks after receipt of deposit

SHIPMENT
Collect, FOB PVA Factory, Halfmoon, NY
Air ride van recommended

INSTALLATION & TRAINING
All training completed at PVA is free of charge. On site installation is billed at a cost of $950.00 per day plus expenses. Weekend and US holiday rates may vary.

ORDER CANCELLATION POLICY
Buyer may only cancel the order for equipment in writing with a cancel charge as per the following schedule:

Cancellation Notice Received	Cancellation Fee Multiplier
0-30 days from order date	25%
31-60 days from order date	35%
More than 60 days from order date	70%

AUTHORIZED SIGNATURE

Frank R. Hart
Director of Marketing and Regional Sales

This quotation is valid for 60 days from the date of issue and does not include any applicable federal, state, or local taxes. Prices are subject to change at anytime after this quotation has expired. This quotation can only be withdrawn or modified prior to expiration date by written notice from PVA to you. No terms and conditions stated on the Purchase Order shall modify the terms or conditions contained in this proposal.

This proposal is intended to be viewed only by the person that is addressed to. This proposal is confidential in nature, and subject to copyright protection. If you are not the intended recipient or the agent of the intended, or if you are unable to deliver this communication to the intended recipient, please do not read, copy, or use this communication or show it to any other person, but notify the sender immediately by telephone at (518) 371-2684.

ORDER ACCEPTANCE & SHIPMENT RELEASE FORM

Thank you once again for your valued order of PVA products. For your records, each individual module and its corresponding serial number included in your order are listed below.

MODULE	SERIAL NUMBER
PVA 350	W3267

We are sorry you are unable to visit PVA to evaluate your order prior to shipment. In lieu of your evaluation, PVA warrants that the above modules have been manufactured to meet each engineering build specification approved prior to commencement of production. In turn, SpaceX, agrees to the following:

- The information contained within the original engineering specification is correct. In the event that modifications to the equipment are requested, and such changes were not included in the original engineering specification, SpaceX will be responsible for any installation, fabrication, and integration costs as these additions are not covered under PVA's warranty.
- PVA offers, free of charge, process development during my equipment evaluation prior to shipment of said modules. By foregoing my evaluation of this equipment, PVA cannot be held liable for assuring that my process parameters are met. Any costs incurred to modify the original process are the responsibility of SpaceX.
- Any term payments tied to successful evaluation at PVA prior to shipment and/or shipment of your order may be executed.
- Shipment per arrangements set forth in the purchase order agreement is granted.

This document in no way affects the conditions of your original PVA equipment warranty.

In the event you wish to schedule a PVA service technician to support your installation and provide operator training at your facility, please contact Pedro Flores at 518-371-2684 x235 (pflores@pva.net).

Signed:

Precision Valve & Automation, Inc. (PVA)	Space Exploration Technologies
Alex Duggan	
Alex Duggan	Nicholas Wong
Project Engineer	Avionics Production Manager

15 Solar Drive, Halfmoon, NY 12065, P: 518-371-2688, F: 518-371-2688

Where Precision Drives Production

Dear Nick,

Thank you for your recent order **# 49742**. We take pride in providing the finest dispensing and automation products available and trust you will be a loyal, long-standing customer. In follow up to your order, I wanted to offer you my personal thanks, while also providing you with a few recommendations for assuring your project is completed in an accurate and timely fashion. Each sales order is assigned to an engineering team here at PVA. The engineers assigned to your project are:

Project Engineer
Alex Duggan
518-371-2684 ext. 228
aduggan@pva.net

Controls Engineer
Mark Kniese
518-371-2684 ext. 215
mkniese@pva.net

Your project engineer will be in touch with you shortly to confirm all project specifications. Your prompt approval of these specifications will assure that your order is completed in a timely fashion. Tentatively, your order is scheduled to be complete on **5/20/09**. As this date approaches, it is advisable to schedule your trip to PVA for final evaluation and training. This trip can be scheduled by contacting:

Customer Service Manager
Pedro Flores
518-371-2684 ext. 235
pflores@pva.net

Please attempt to schedule this trip up to two weeks in advance to allow the greatest flexibility in available training dates. While we do strongly suggest visiting PVA prior to shipment, if you decide to forego this opportunity, Pedro Flores will still be a vital asset in scheduling installations, service trips, or troubleshooting our equipment.

Further, there are a couple of other key contacts at PVA that may be in contact with you during the build process and throughout our working relationship. These contacts are:

Spare Parts Orders and Pricing
Kevin Durante
518-371-2684 ext. 240
kdurante@pva.net

Accounts Receivable
Amy Wu
518-371-2684 ext. 223
awu@pva.net

Shipping Logistics
Robert Deerfield
518-371-2684 ext. 238
rdeerfield@pva.net

If there are any other outstanding issues or questions you may have that we can assist with, please feel free to contact your salesman **Frank Hart** or myself at any time as well. Again, thank you for your order. We look forward to working with you on this order.

Best regards,

Jeremy Prusky
Operations Manager
PVA
518-371-2684 ext. 250
jprusky@pva.net

CONSTRUCTION CHECKLIST

Frame

- [x] Workcell frame visually inspected
- [x] Frame members are properly squared
- [x] All exposed connectors have Bosch covers in place

Pneumatics

- [x] Pneumatic tubing visually inspected
- [x] Pneumatic solenoids actuated
- [x] All solenoids are labeled on manifold
- [x] All tubing is labeled with labels facing the same direction
- [x] Rotary actuators are adjusted to allow 0-45-degree motion
- [x] Air regulators confirmed operational

Mechanical Inspection

- [x] Confirm system is mechanically built to approved engineering specification

Top Frame / Motion Platform Inspection

- [x] X and Y axes are confirmed square with appropriate calibration fixture
- [x] Guide rail has been aligned with the frame utilizing appropriate calibration fixture
- [x] Gantry has been aligned with the guide rail
- [x] Slide motion is visually inspected as smooth

Electrical Check

- [x] All wires are run in proper order and labeled correctly
- [x] Electrical debug completed

Material Line Inspection

- [x] All material lines visually inspected and free of kinks
- [x] Material lines are labeled with labels facing the same direction
- [x] Material lines pressure tested to confirm quality

Safety Inspection

- [x] All guarding visually inspected and installation confirmed
- [x] Low level exhaust sensor tested and confirmed operational
- [x] All interlocks tested and confirmed operational
- [x] Emergency stop tested and confirmed operational
- [x] System startup safety check tested

CONTINUITY CHECK

☑ Point to point continuity check completed to confirm no wiring errors

POWER CHECK

☑ Terminal voltage confirmed to match approved engineering specification
☑ All fuses installed and manually inspected
☑ Emergency stop voltage confirmed
Supply voltage required

DOCUMENTATION CHECK

☐ Serial number documented in PVA database
☐ Electronic copy of Production & Quality Control Manual completed
☐ Hard copy of Production & Quality Control Manual completed

PRE-DEBUG CHECKLIST

☑ Basic de-bug program installed
☑ I/O check completed
☑ Conveyors calibrated and flow direction confirmed
☑ All pneumatics cycled and confirmed operational
☑ Flow controls are set
☑ Serial tag number confirmed to match machine
☑ Axes homed and amps confirmed operational
☑ Power to all motors confirmed
☑ Encoders confirmed operational
☑ Teach pendant installed and confirmed operational
☑ Operator interface toggled and manually inspected
☑ All pneumatic stops and locators toggled and confirmed operational
☑ Fluid lines, regulators, and fittings inspected and tested
☐ AB box / Computer / Monitor installed and operational (if applicable)
☐ Blower Hz matches correct frequency (if applicable)
☑ QC Burn cycle completed to 1500 counts

GALIL MOTION CONTROLLER TUNED

☑ Tuned controller to five volts

This PVA system has been inspected to meet all quality standards as outlined above and has been found to match the approved engineering specification, and has passed all electrical and mechanical inspections.

Lorenzo Ramirez
PVA Quality Control

PVA\SPCX2115\

Precision Valve & Automation, Inc.

**** SHIPPING INSTRUCTIONS ****

Company: Space X **PO No.** 49742

Contact: Nick Wong **Contact Phone No.** 310-363-6000

Project: SPCX2115/W3267 **Email Address:** nicholas.wong@spacex.com

Ship Date: 5/22/2009

Ship To:

Space Exploration Technologies Corp.
1 Rocket Road
Avionics Department
Hawthorne, CA 90250

Shipper Information

Company:
Telephone:
Contact:
Method: Collect
FOB: Halfmoon

Driver Signature:
Driver ID:

Special Instructions:

PVA Employee Signature:

PVA\SPCX2115\

Ship To: **Space Exploration Technologies Corp.**

1 Rocket Road
Avionics Department
Hawthorne, CA 90250

Attn: **Nicholas Wong**

PO#: **49742**

PVA\SPCX2115\W3267\Doc\

Workcell Specification

Customer: SpaceX Rev.: A
Job Number: SPCX2115 Rev. Date:
Rev. Description:
Date Created: 04/24/09 Date Completed: 04/27/09 Engineer: AFD

Options	*#1 W3267*	*Notes*
Machine Type		
250,350,650,850,2000,3000	350	
Custom (y/n)	No	
Motion Axes:	3	
Controller Axes:	4	
Controller: (1500/2000)	2000	
X-Stroke:	~400 mm	
Y-Stroke:	~400 mm	
Z-Stroke:	~90 mm	
CE required: (y/n)	No	
Outlet type(Country)	N/A	
Head 1:	Spray Valve	
Z-slide (y/n):	Yes	
Stroke Adjust: (y/n)	No	
Rotary (y/n):	No	
Size 7 or 10:	-	
Valve:	FCS300-ES	
Atom Air range:	0 – 5 psi	
O-ring material:	Kalrez	
Head 2:	Dispense Valve	
Z-slide (y/n):	Yes	
Stroke Adjust: (y/n)	No	
Rotary (y/n):	Yes	
Size 7 or 10:	7	
Valve:	FCM100-22G	
Atom Air range:	-	
O-ring material:	Kalrez	
Head 3:		
Z-slide (y/n):		
Stroke Adjust: (y/n)		
Rotary (y/n):		
Size 7 or 10:		
Valve:		
Atom Air range:		
O-ring material:		

8/25/2017

Head 4:		
Z-slide (y/n):		
Stroke Adjust: (y/n)		
Rotary (y/n):		
Size 7 or 10:		
Valve:		
Atom Air range:		
O-ring material:		
Laser Height (y/n):	No	
Laser Pointer (y/n):	No	
Prog. Camera (y/n):	Yes	
Head tooling:	Standard 3 Axis, 2 Valve	
Custom:	No	
Double tooled:	No	
Other:	-	
Conveyor:	None	
Type: (Belt/Chain)		
Direction (LtoR, RtoL)		
Conveyor length:		
Conveyor height:		
SMEMA:		
Bi-Directional: (y/n)		
Upstream/Downstream		
PIP Sensors:		
Auto width adj.:		
Hand crank width adj.:		
Lift and locate:		
Board locators:		
Board stops: (Type)		
Quantity on front rail:		
Quantity on back rail:		
Part Fixturing:	Yes	
Flex Fixture:	Yes	
Part present sensor:	No	
Custom Fixture:	No	
Work height:	-	
Cycle Start:	Hand Start	
Hand start:	Yes	
Single zero force:	No	
Double zero force:	No	
Controller: (y/n)	No	
Push button:	Yes	

8/25/2017

Guarding:		
Doors:	Yes	
Interlocks: (y/n)	Yes	
Light curtain:	No	
Light tower:	No	
Process Controls:		
Flow Monitor:	No	
Remote transmitter: (y/n)	-	
Gear style: (y/n)	-	
Low level:	No	
Auto Crossover:	No	
Computer:	Yes	Customer Supplied
Portal OIT: (y/n)	No	
Bar code reader:	No	
A/B Box: (y/n)	No	
Data Logging:	No	
Needle Calibration:	No	
Black light	No	
Cycle rate (sec.)	Unknown	
Air Requirements:		
PSI:	80 – 100	
Dry: (y/n)	Yes	
Lubricated: (y/n)	No	
CFM:	< 10	
Ventilation:		
Minimum CFM:	300	
Flange dia. : (4" or 5")	5"	
PVA blower: (y/n)	No	
Blower exit diameter:	-	
Exhaust switch: (y/n)	Yes	
Supply Voltage:		
120VAC:	Yes	
220VAC:	No	
Frequency:	60 Hz	
Current:	12A	
Phase:	Single	
Coating Material:		
Material A:	SCC NVOC	
Material B:		
Solvent:	None	
Kalrez O-rings? (y/n)	Yes	

8/25/2017

Material Delivery:		
Pressure vessel:		
1gal:		
2gal:	1	Feeding both valves
5gal:		
10gal:		
Cartridge Supply:		
2.5oz:		
6oz:		
12oz:		
20oz:		
32oz:		
Cartridge drive:		
Servo:		
Pneumatic:		
Syringe Supply:		
3cc:		
5cc:		
10cc:		
30cc:		
50cc:		
5 gal. Pumping System:		
Pump ratio:		
Solvent Cup(s):	2	
Purge Pan/Cup(s):	2	
Other:		
Spare parts kit:		

8/25/2017

From: Nicholas Wong <Nicholas.Wong@spacex.com>
Sent: Friday, April 24, 2009 3:49 PM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Alex,

Coating Material is NVOC through Electrolube. Coating material is not solvent based, but they have an NVOC Machine Cleaner that is used to clean out the machine.

Nicholas Wong
Avionics Production Manager
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250

http://www.spacex.com

From: Alex Duggan [mailto:ADuggan@PVA.net]
Sent: Friday, April 24, 2009 8:59 AM
To: Nicholas Wong
Subject: PVA Machine Specifications

Hi Nick,

I received your order for a PVA 350 from Frank Hart and I have created the preliminary machine specifications. Please look them over carefully for errors and fill in any missing information indicated by red text. Once the specifications have been completed and verified, we can begin production of your machine. If you have any questions, please let me know.

Thanks,
Alex

--

Alex Duggan
Project Engineer

PVA
15 Solar Drive
Halfmoon, NY 12065
518-371-2684 ext. 228

From: Alex Duggan
Sent: Monday, April 27, 2009 5:48 AM
To: 'Nicholas Wong'
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Nicholas,

Thanks for the information about the coating material. Did everything else on the specification sheet look alright?

Alex

From: Nicholas Wong [mailto:Nicholas.Wong@spacex.com]
Sent: Friday, April 24, 2009 6:49 PM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Alex,

Coating Material is NVOC through Electrolube. Coating material is not solvent based, but they have an NVOC Machine Cleaner that is used to clean out the machine.

Nicholas Wong
Avionics Production Manager
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250

http://www.spacex.com

From: Alex Duggan [mailto:ADuggan@PVA.net]
Sent: Friday, April 24, 2009 8:59 AM
To: Nicholas Wong
Subject: PVA Machine Specifications

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Thanks,
Alex

--

Alex Duggan
Project Engineer

From: Nicholas Wong <Nicholas.Wong@spacex.com>
Sent: Monday, April 27, 2009 8:49 AM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Follow Up Flag: Follow up
Flag Status: Completed

Everything else looked ok.

Nicholas Wong
Avionics Production Manager
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250

http://www.spacex.com

From: Alex Duggan [mailto:ADuggan@PVA.net]
Sent: Monday, April 27, 2009 5:48 AM
To: Nicholas Wong
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Nicholas,

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Alex

From: Nicholas Wong [mailto:Nicholas.Wong@spacex.com]
Sent: Friday, April 24, 2009 6:49 PM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Alex,

Coating Material is NVOC through Electrolube. Coating material is not solvent based, but they have an NVOC Machine Cleaner that is used to clean out the machine.

Nicholas Wong
Avionics Production Manager
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250

From: Alex Duggan
Sent: Monday, April 27, 2009 8:49 AM
To: 'Nicholas Wong'
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Excellent. We have set a 5/20/09 completion date. Are you planning to travel here for a machine runoff and training, or do you want us to ship the machine to you as soon as it is completed?

Alex

From: Nicholas Wong [mailto:Nicholas.Wong@spacex.com]
Sent: Monday, April 27, 2009 11:49 AM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Everything else looked ok.

Nicholas Wong
Avionics Production Manager
Space Exploration Technologies
1 Rocket Road
Hawthorne, CA 90250

http://www.spacex.com

From: Alex Duggan [mailto:ADuggan@PVA.net]
Sent: Monday, April 27, 2009 5:48 AM
To: Nicholas Wong
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Nicholas,

Thanks for the information about the coating material. Did everything else on the specification sheet look alright?

Alex

From: Nicholas Wong [mailto:Nicholas.Wong@spacex.com]
Sent: Friday, April 24, 2009 6:49 PM
To: Alex Duggan
Cc: Bill Burns
Subject: RE: PVA Machine Specifications

Alex,

Coating Material is NVOC through Electrolube. Coating material is not solvent based, but they have an NVOC Machine Cleaner that is used to clean out the machine.

From: David Gomez
Sent: Tuesday, September 10, 2013 11:04 AM
To: Jonathan Connelly; Richard Bievenue
Cc: David Filbert; Michael R. Leonard; Jonathan Urquhart
Subject: RE: meter-mix application

Hey mang,

No need for Dave and his metering mix systems.

Looks like they only want a 20oz cartridge retainer&cap with spray & needle valve for the pre-mix material and a 6oz cartridge retainer&cap for the solvent ,so it can flush the premixed material out right after doing a batch of boards.

I've done this fluid delivery line several times.

Let me know if you need a project # for reference,Urquhart can also tell you how this is done

Regarding options for spraying two part coatings –we are not there yet.

David E Gomez
PVA
Account Executive
281 217 7247

From: Jonathan Connelly
Sent: Tuesday, September 10, 2013 10:10 AM
To: Richard Bievenue
Cc: David Filbert; David Gomez; Michael R. Leonard
Subject: RE: meter-mix application

It is going to be a long time before I could do any real work on a full MMX system for them... unless Dave f wants to work on that part.

I could set them up with a quote for a syringe system for premixed material...

From: Richard Bievenue
Sent: Monday, September 09, 2013 2:12 PM
To: Jonathan Connelly
Cc: David Filbert; David Gomez; Michael R. Leonard
Subject: meter-mix application

Jon,

I just spoke with an engineer from SpaceX named Duc Phan (pronounced "Dook Fawn"). They have one of our 350 machines, s/n W3267. They want to switch to a 2-part material, Huntsman Arathane 5750. They are currently considering just pre-mixing the material and then flushing it out after a couple hours, using a series of valves and solvent tanks. Mike Leonard may be assisting them with getting the electrical schematics and discussing program options with them in case they try to do this on their own.

They would also like to hear what options we have for them as far as a 2-component meter-mix system. Can you contact Duc and let him know you would be the man to pick up the ball on this? Then we can discuss what the best configuration would be.

Contact info:

Duc.phan@spacex.com
Ph: 310-363-6316

Best Regards,

Rich Bievenue
Fluid Systems Engineer

1 Mustang Drive
Cohoes, NY 12047
Ph: 518-371-2684 x2203
rbievenue@pva.net

From: Richard Bievenue
Sent: Monday, September 09, 2013 2:12 PM
To: Jonathan Connelly
Cc: David Filbert; David Gomez; Michael R. Leonard
Subject: meter-mix application

Jon,

I just spoke with an engineer from SpaceX named Duc Phan (pronounced "Dook Fawn"). They have one of our 350 machines, s/n W3267. They want to switch to a 2-part material, Huntsman Arathane 5750. They are currently considering just pre-mixing the material and then flushing it out after a couple hours, using a series of valves and solvent tanks. Mike Leonard may be assisting them with getting the electrical schematics and discussing program options with them in case they try to do this on their own.

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Contact info:

Duc.phan@spacex.com
Ph: 310-363-6316

Best Regards,

Rich Bievenue
Fluid Systems Engineer
PVA
1 Mustang Drive
Cohoes, NY 12047
Ph: 518-371-2684 x2203
rbievenue@pva.net

Looking at your request.. We could put pneumatic ball valves to control the material and flush. I think it will waste a good amount of material and solvent. You will need to flush out the material with each rinse cycle and then purge out the solvent until the material starts flowing again...

We could add timers to the machine to stop and alarm every 30 minutes or hour to remind the operators to flush and fill the system..

Do you already have 24 VDC actuator valves that you are planning to use? Why do you need analog control for these? Do you have a data sheet on them?

Best regards,

Jon Connelly
Technical Sales
PVA
1 Mustang Drive
Cohoes NY, 12047
Ph# (518) 371-2684 ext 2421
Cell (518) 487-9611
Fax (518) 371-2688

From: Duc Phan [mailto:Duc.Phan@spacex.com]
Sent: Tuesday, September 10, 2013 11:35 AM
To: Michael R. Leonard; Jonathan Connelly
Subject: Arethane 5750 Automate Rinse and Pruge PVA 350, P/N: SPCX2115 S/N: W3267

Hello John,
I am a Process engineer for SpaceX located in Hawthorne, CA. We have the PVA 350, P/N: SPCX2115 S/N: W3267. We are using the Arethane 5750 material that have 2 hours cure time, which we are concern that operator may forgot to purge and rinse the material when the job is done. To avoid this problem I am hoping to automate the purge and rinse process. The plan is to have the 24VDC actuator valves to turn on/off the purge and rinse reservoirs after the coating program.
I need help writing the subroutine program for rinse and purge and identify which analog signals can I connect the 24VDC actuator valves and the which digital signals to turn them on?

Thank you in-advance for helping!

Duc Q. Phan
SpaceX
Process Engineer
1 Rocket Road
Hawthorne, CA 90250
D PH: 31-363-6316
C PH: 310-940-9320

PVA6000 Robot Proposal

Reference #12529

Scott Vorhies

SPACE EXPLORATION

TECHNOLOGIES

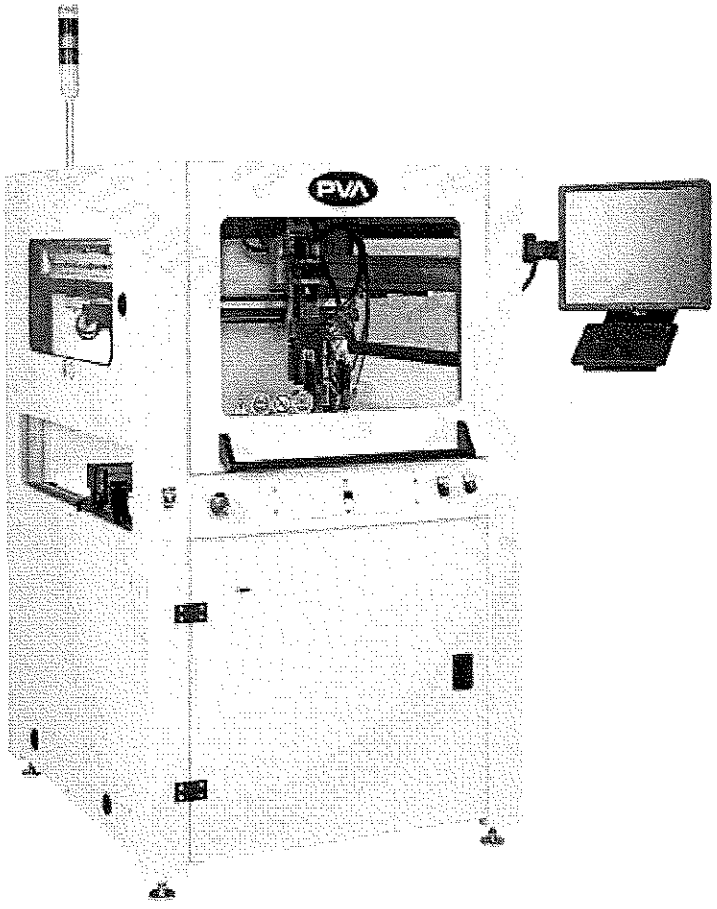
1 ROCKET ROAD

HAWTHORNE, CA 90250

USA

Phone: (310) 363-6000

Fax: (310) 363-6001



January 14, 2015

One Mustang Drive
Cohoes NY 12047
tel 518 371 2684
fx 518 371 2688
www.pva.net

PVA6000 Robot Proposal

Reference #12529

Scott Vorhies

SPACE EXPLORATION

TECHNOLOGIES

1 ROCKET ROAD

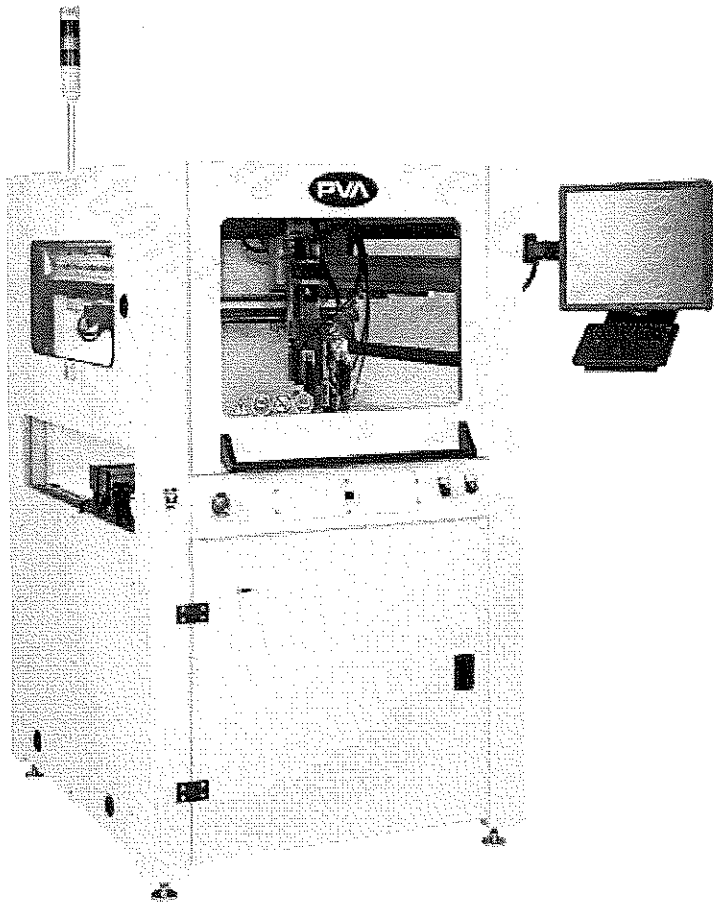
HAWTHORNE, CA 90250

USA

Phone: (310) 363-6000

Fax: (310) 363-6001

January 14, 2015



One Mustang Drive
Cohoes NY 12047
tel 518 371 2684
fx 518 371 2688
www.pva.net

From: Cory Jacobs <cjrestronics@gmail.com>
Sent: Tuesday, January 20, 2015 2:40 PM
To: David DiDomenico
Cc: Gavin Matupang
Subject: Re: PVA Masking Equipment PO

David,

I will get with Gavin on this. Thanks

Cory

On Tue, Jan 20, 2015 at 2:34 PM, David DiDomenico <David.DiDomenico@spacex.com> wrote:

Cory/Gavin,

Can one of you please send me the following info (or what you can) that our maintenance department has requested in order to get the PMs and spares plan in place before the machine arrives?

Maintenance & Operational Manual.

- Schematics: Electrical, Hydraulic, pneumatic, Ladder logic, etc.
- Spare Parts List with cost and lead-times.
- Preventive Maintenance program
- Operational & maintenance training offered
- Condition Monitoring options
- Warrantee
- Local service company information
- Failure Mode and Effect Analysis

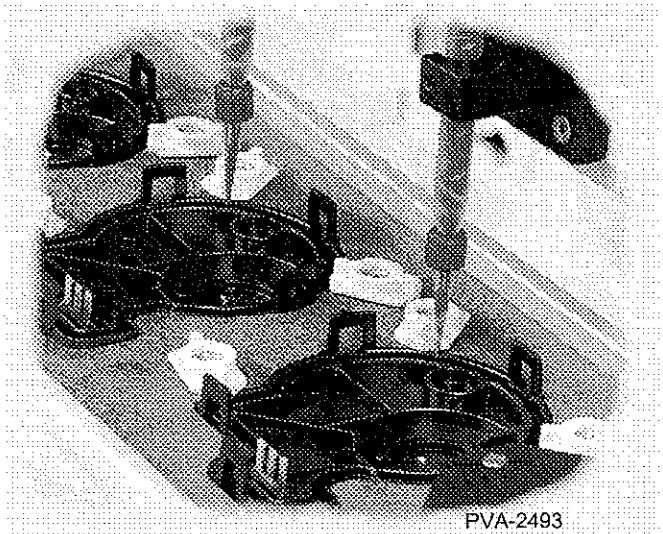
Thanks,

MX4000 Meter Mix Dispensing System Proposal

Reference #15-060

<Name>
<Corporation>
<Street Address>
<City, State, Postal>
<Fax>

March 6, 2015


PVA-2493

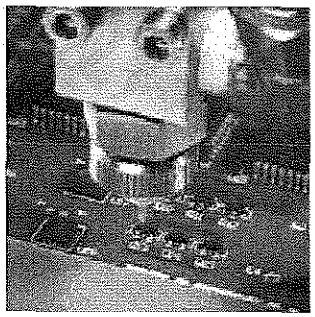
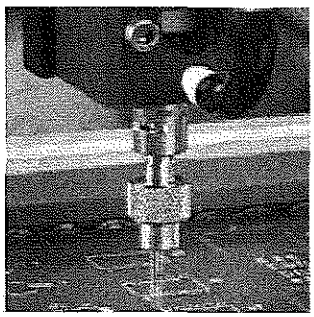
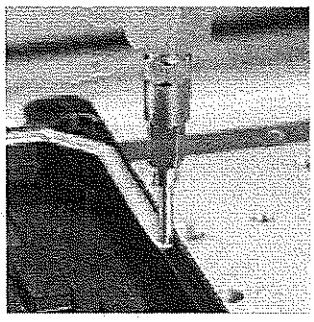
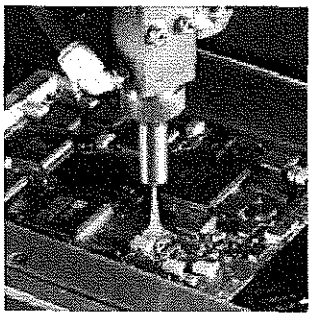
One Mustang Drive
Cohoes, NY 12047
tel 518 371 2684
fx 518 371 2688
www.pva.net

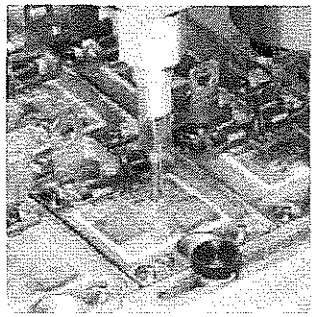
WHERE

PRECISION

DRIVES

PRODUCTION



PVA Workcell

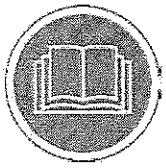
Installation and General Guidelines

Rev A

1.3 Safety

Certain warning symbols are affixed to the machine and correspond to notations in this manual. Before operating the system, identify these warning labels and read the notices described below. Not all labels may be used on any specific system. Read the workcell manual for additional safety information related to the workcell and its components.

Always wear approved safety glasses when you operate or work near the workcell.



Before you operate the system, read and understand the manuals provided with the unit.

Never put hands or tools in areas with this symbol when the machine is in operation. A dangerous condition may exist.

Read and understand the manuals provided with the unit before any repairs or maintenance is done. Only a qualified individual should do service.

Use caution when there are pressurized vessels. Find and repair any leaks immediately. Always wear appropriate safety equipment when you work with pressurized vessels or vessels that contain chemicals.

Shear hazard from moving parts. Avoid contact.

In situations where inattention could cause either personal injury or damage to equipment a warning notice is used.

1.4 System Description

This manual applies to the following Precision Valve & Automation, Inc. workcells:

PVA350™	PVA6000™
PVA650™	Delta 6
PVA2000™	Delta 8
PVA3000™	

The valves are mounted to the end effector of a two, three, or four axis Cartesian robot. All dispensing is done in the work area enclosed with safety glass or polycarbonate. The axes have limits to prevent damage to the machine. The dispense path and active heads are controlled by a program stored in the motion controller. The motion controller can save up to 30 programs at one time.

The operator controls the workcell with PVA Portal software. This includes machine setup, manual operation, program selection, and automatic operation. Machine status and error messages are shown in the program window and the light tower. The operator(s) must have read this manual, or have been trained and understand the operation of the machine.

Any uses that are not approved could result in dangerous conditions that the safety features on the system cannot prevent.

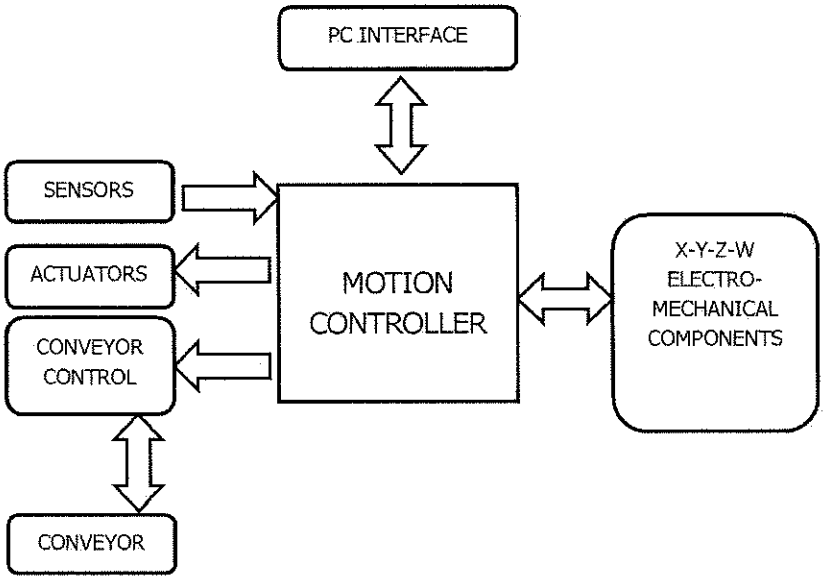


Figure 1: Workcell Functional Block Diagram

3.6 Notices and Warnings

- You must wear safety glasses, gloves, and long sleeves.
- Lock-out and tag the air and power supplies before you service or clean any part of this equipment
- Release the pressure before any hose (air or fluid) is removed
- All hoses must have the correct pressure rating
- Use only replacement parts recommended or supplied by the manufacturer
- Stay away from all parts that move when the system is in operation

4. Table of Figures

From: David DiDomenico <David.DiDomenico@spacex.com>
Date: May 29, 2015 at 2:08:27 PM EDT
To: Alex Corliss <Alex.Corliss@spacex.com>, Michael Carter <mcarter@PVA.net>
Subject: RE: PVA install

Michael,

Will you handle the uncrating and installation, and if so, what tools do we need to have ready on Monday? Or do we need to have it uncrated and in its place ahead of time, and if so, do you have instructions for how to uncrate it?

Thanks,

David DiDomenico | **Manufacturing Engineer, Avionics**

1 Rocket Rd, Hawthorne CA 90250
Office: 310-970-3467
Mobile: 850-544-5767

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---

From: Alex Corliss
Sent: Wednesday, May 27, 2015 12:00 PM
To: Michael Carter; David DiDomenico
Subject: RE: PVA install

The machine is arriving this afternoon so we're planning having everything ready to go by the end of the week. Are you available Monday of next week? How is the time split up between installation and training?

The address you listed is correct.

Thanks,

Alex Corliss | Manufacturing Engineer, Avionics
Space Exploration Technologies | 1 Rocket Road, Hawthorne, CA 90250
☎P: 310.363.6660 ☎C: 805.689.8410 Alex.Corliss@spacex.com

From: Michael Carter [mailto:mcarter@PVA.net]
Sent: Wednesday, May 27, 2015 6:54 AM
To: David DiDomenico; Alex Corliss
Subject: PVA install

Hello Alex and David,

I'll be coming to your facility to install the new PVA equipment.
When will you be ready for me?
Please keep in mind the machine will need power, compressed air and exhaust hooked up in order to run.

Also, please verify that this is the correct address:
1 Rocket Road Hawthorne, CA.

Thank you.

Michael Carter
PVA Customer Service
1 Mustang Drive.
Cohoes, NY 12047.
Cell: (518) 728-1964

From: David DiDomenico <David.DiDomenico@spacex.com>
Sent: Tuesday, June 02, 2015 9:28 AM
To: Andrew Haraburda; Michael Yanulavich
Cc: Rex Ellis; Alex Corliss; Gavin Matupang; David Filbert
Subject: RE: PVA install

Sorry, I meant Mike.

David DiDomenico | **Manufacturing Engineer, Avionics**

SPACEX

1 Rocket Rd, Hawthorne CA 90250
Office: 310-970-3467
Mobile: 850-544-5767

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---

From: Andrew Haraburda [mailto:AHaraburda@PVA.net]
Sent: Tuesday, June 02, 2015 9:27 AM
To: David DiDomenico; Michael Yanulavich
Cc: Rex Ellis; Alex Corliss; Gavin Matupang; David Filbert
Subject: RE: PVA install

Mike,

Did you make it to LAX yesterday?

Best regards,

Drew Haraburda
Regional Service Manager
Precision Valve & Automation
One Mustang Drive
Cohoes, NY 12047
tel 1 518-371-2684 x2422
aharaburda@pva.net
www.pva.net

From: David DiDomenico [mailto:David.DiDomenico@spacex.com]
Sent: Tuesday, June 02, 2015 12:25 PM
To: Andrew Haraburda
Cc: Michael Carter; Michael Yanulavich; Rex Ellis; Alex Corliss; Gavin Matupang
Subject: RE: PVA install

Andrew, what's your ETA?

David DiDomenico | **Manufacturing Engineer, Avionics**

SPACEX

1 Rocket Rd, Hawthorne CA 90250
Office: 310-970-3467
Mobile: 850-544-5767

CONFIDENTIAL

From: David DiDomenico <David.DiDomenico@spacex.com>
Sent: Tuesday, June 02, 2015 10:08 AM
To: Michael Yanulavich
Cc: Alex Corliss
Subject: RE: PVA install

Okay cool, Alex will pick you up in the lobby and I will join you guys upstairs shortly.

Thanks,
David

From: Michael Yanulavich [mailto:MYanulavich@PVA.net]
Sent: Tuesday, June 02, 2015 10:07 AM
To: David DiDomenico
Subject: Re: PVA install

I'm back, just parked should be in the lobby shortly.

Sent from my iPhone

On Jun 2, 2015, at 9:35 AM, David DiDomenico <David.DiDomenico@spacex.com> wrote:

> Okay, let us know when you're back on site.
>
> Thanks,
>
> **David DiDomenico | Manufacturing Engineer, Avionics**
> SPACEX
> **1 Rocket Rd, Hawthorne CA 90250**
> **Office: 310-970-3467**
> **Mobile: 850-544-5767**
>
> -- This Email Contains Sensitive Proprietary and Confidential Information - Not for Further Distribution Without the Express Written Consent of Space Exploration Technologies --
>
> ---
>
> **From:** Michael Yanulavich [mailto:MYanulavich@PVA.net]
> **Sent:** Tuesday, June 02, 2015 9:32 AM
> **To:** David DiDomenico
> **Cc:** Andrew Haraburda
> **Subject:** Re: PVA install
>
> David,
>
> My apologies, I was signing into the lobby but my driver's license is missing. I'm going to run back to my hotel and hopefully it should be there, or at least I'll have my passport.
>
> Sent from my iPhone
>
> On Jun 2, 2015, at 9:25 AM, David DiDomenico <David.DiDomenico@spacex.com> wrote:

From: Gavin Matupang
Sent: Tuesday, June 02, 2015 2:41 PM
To: David Filbert; Andrew Haraburda; Michael Yanulavich
Cc: Rex Ellis
Subject: RE: PVA install

Yes he is there with SpaceX.

Regards,

Gavin Matupang
Regional Sales Manager
1 Mustang Drive,
Cohoes, NY 12047
Cell: (612) 720-1441
gmatupang@pva.net
www.pva.net

From: David Filbert
Sent: Tuesday, June 02, 2015 4:37 PM
To: Andrew Haraburda; Michael Yanulavich
Cc: Rex Ellis; Gavin Matupang
Subject: RE: PVA install

Did he make it?

From: Andrew Haraburda
Sent: Tuesday, June 02, 2015 12:27 PM
To: David DiDomenico; Michael Yanulavich
Cc: Rex Ellis; Alex Corliss; Gavin Matupang; David Filbert
Subject: RE: PVA install

Mike,

Did you make it to LAX yesterday?

Best regards,

Drew Haraburda
Regional Service Manager
Precision Valve & Automation
One Mustang Drive
Cohoes, NY 12047
tel 1 518-371-2684 x2422
aharaburda@pva.net
www.pva.net

From: David DiDomenico [mailto:David.DiDomenico@spacex.com]
Sent: Tuesday, June 02, 2015 12:25 PM
To: Andrew Haraburda

CONFIDENTIAL

From: Alex Corliss <Alex.Corliss@spacex.com>
Sent: Monday, June 08, 2015 7:11 PM
To: Michael Yanulavich
Cc: David DiDomenico
Subject: Masking machine info

Hi Michael,

Hope your return trip was smooth. Did you find out which vendor you use for the transparent polyester sheets yet? Also can you send over documentation for programming, PM, etc. when you get a chance?

Thanks,

SPACEX
Alex Corliss | Manufacturing Engineer, Avionics
Space Exploration Technologies | 1 Rocket Road, Hawthorne, CA 90250
☎P: 310.363.6660 ☎C: 805.689.8410 Alex.Corliss@spacex.com

From: David DiDomenico <David.DiDomenico@spacex.com>
Sent: Monday, June 15, 2015 9:18 AM
To: Gavin Matupang; Alex Corliss
Subject: RE: SpaceX Supplier Update Tool - PVA - Precision Valve & Automation, Inc

Done. When will we receive the manual and documentation for the machine?

David DiDomenico | Manufacturing Engineer, Avionics

SPACEX

1 Rocket Rd, Hawthorne CA 90250
Office: 310-970-3467
Mobile: 850-544-5767

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From: Gavin Matupang [mailto:gmatupang@PVA.net]
Sent: Monday, June 15, 2015 6:20 AM
To: David DiDomenico; Alex Corliss
Subject: Fwd: SpaceX Supplier Update Tool - PVA - Precision Valve & Automation, Inc

Can you please update purchasing that these were delivered with the machine? Sent them a note last week but still getting this notification.

Regards,

Gavin Matupang
Regional Sales Manager
PVA
Cell (612) 720-1441
gmatupang@pva.net
www.pva.net

Sent from iPad.

Begin forwarded message:

From: Jonathan Connelly <JConnelly@PVA.net>
Date: June 15, 2015 at 5:05:09 AM PDT
To: Gavin Matupang <gmatupang@PVA.net>
Subject: FW: SpaceX Supplier Update Tool - PVA - Precision Valve & Automation, Inc

From: Supplier Update [mailto:Supplier.Update@SpaceX.com]
Sent: Monday, June 15, 2015 7:32 AM

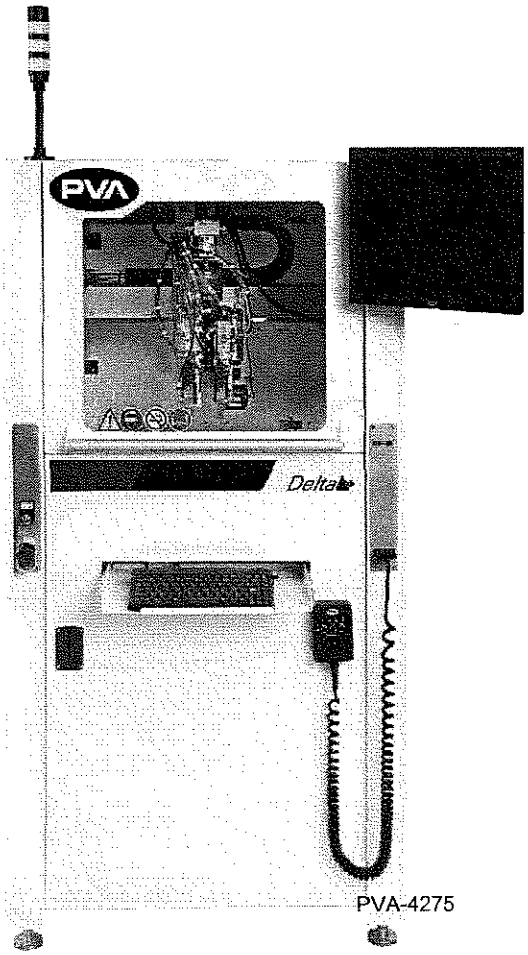
PVA

Delta 6

Quote Reference #16-032

Scott Vorhies
Space Exploration Technologies
One Rocket Road
Hawthorne, CA 90250
USA

January 21, 2016



One Mustang Drive
Cohoes NY 12047
tel 518 371 2684
fx 518 371 2688
www.pva.net

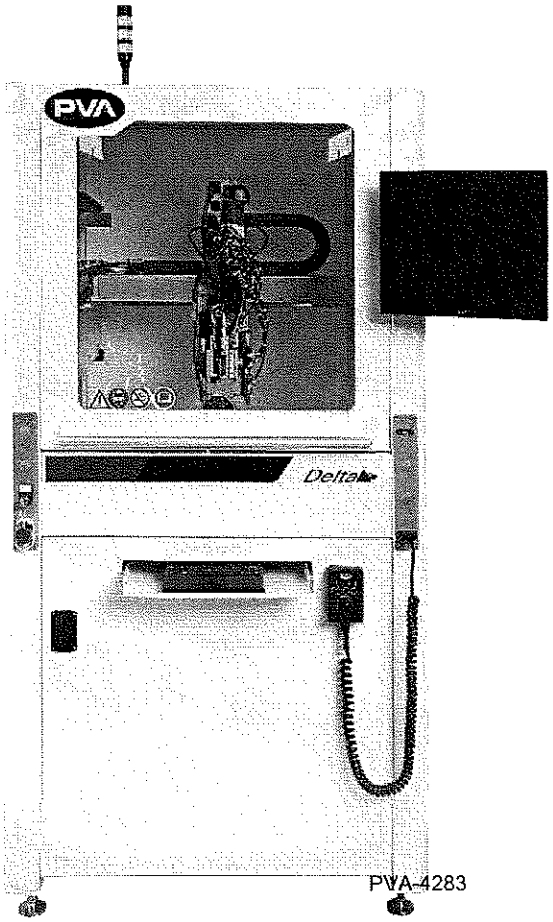
PVA

Delta 8

Quote Reference #16-034

Scott Vorhies
Space Exploration Technologies
One Rocket Road
Hawthorne, CA 90250
USA

January 21, 2016



PVA-4283

One Mustang Drive
Cohoes NY 12047
tel 518 371 2684
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www.pva.net

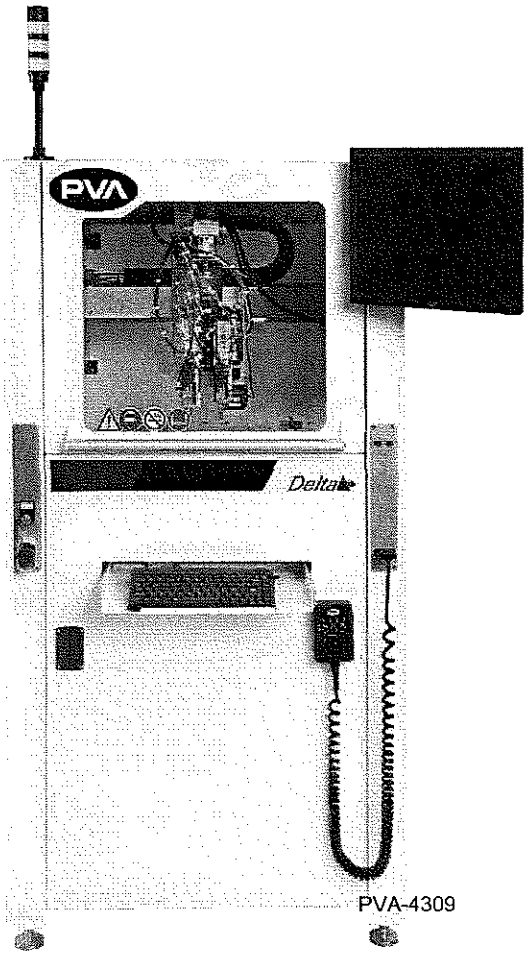
PVA

Delta 6

Quote Reference #16-032

Scott Vorhies
Space Exploration Technologies
One Rocket Road
Hawthorne, CA 90250
USA

January 21, 2016



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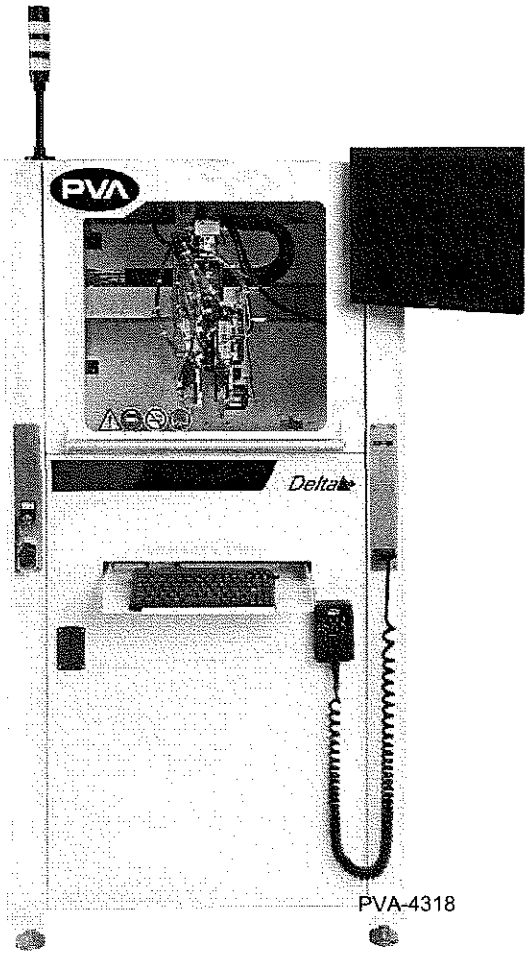
PVA

Delta 6

Quote Reference #16-032

Scott Vorhies
Space Exploration Technologies
One Rocket Road
Hawthorne, CA 90250
USA

January 21, 2016



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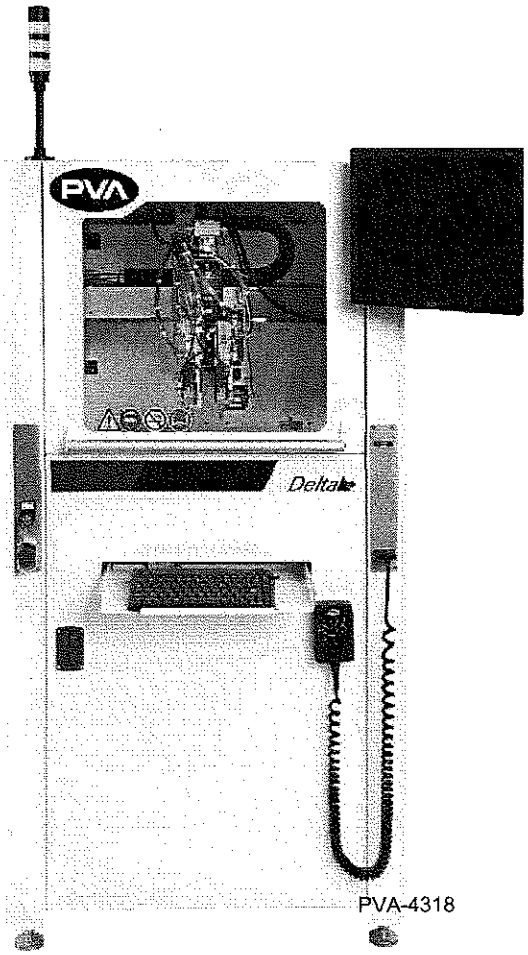
Delta 6

Quote Reference #16-032

Scott Vorhies
Space Exploration Technologies
One Rocket Road
Hawthorne, CA 90250
USA

January 21, 2016



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www.pva.net

PVA

Delta 6

Reference #16185-B

SPACE EXPLORATION

TECHNOLOGIES

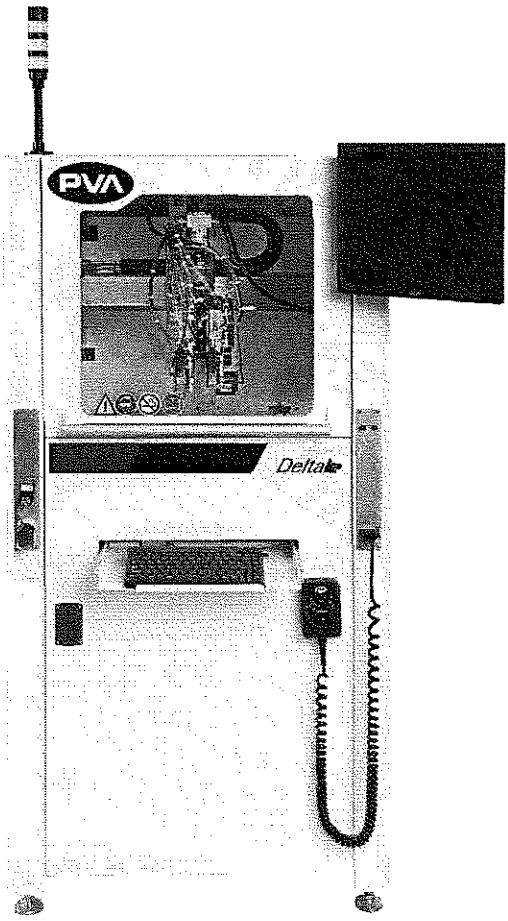
1 ROCKET ROAD

HAWTHORNE, CA 90250

USA

Phone: (310) 363-6000

Fax: (310) 363-6001



March 08, 2016

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tel 518 371 2684
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PVA

Delta 6

Quote Reference #16-032-B

Scott Vorhies
Space Exploration Technologies
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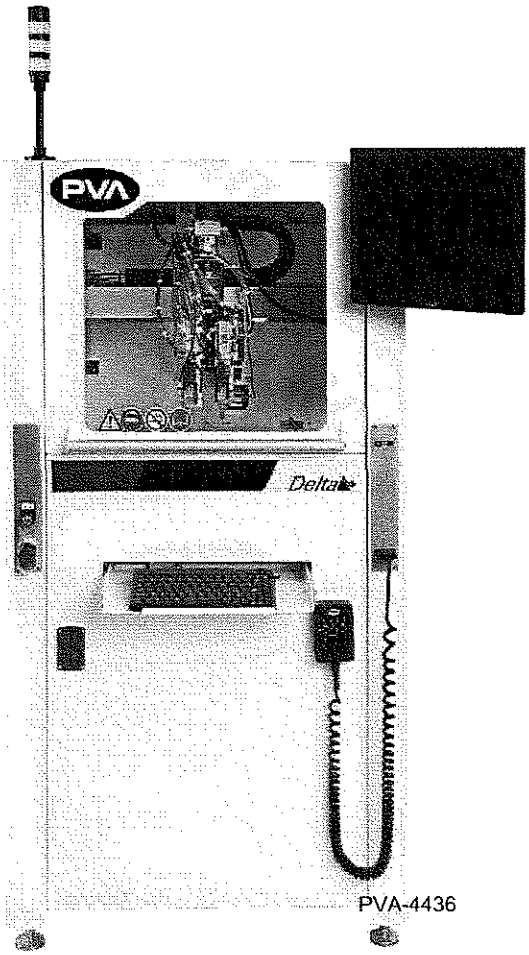
Hawthorne, CA 90250
USA

January 21, 2016



One Mustang Drive
Cohoes NY 12047
tel 518 371 2684
fx 518 371 2688
www.pva.net

SPCX2115

P.V.A. SYSTEM KIT – PVA350

5/30/07

Company Name: SPACE EXPLORATION TECHNOLOGIES CORP.

Serial # W3267

- ☑ Teach Pendant
- ☑ Rs232 Cable
- ☑ Door Bypass Key
- ☑ Purge Pan / Cups (4)
- ☑ Main Air Regulator (ON THE SYSTEM)
- ☑ Pressure Tank (1) 2 GAL.
- ☐ 5-Gallon Pail Pump
- ☑ Hose & Tubing
- ☑ Pathmaster - CD
- ☑ Operating Guide - CD W3967
- ☐ Scale & Controller
- ☐ Table
- ☐ System Spare Part Kit (YES / NO)
- ☐ CE Certification
- ☐ Calibration Plate w/ Pointers ( )
- ☐ Battery Backup
- ☐ Computer /Keyboard/Monitor

- ☐ Pump System
- ☐ Syringe Pump
- ☐ Light Tower
- ☐ Sample Production Parts
- ☐ Misc. Cables and Parts
- ☑ (1) FFMV-03MTC-GD
- ☑ (1) ACC-01-1000
- ☑ (1) SAMPLE NEEDLE
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☑ (Picture Taken)

PVA 4551

U:\Legal-Ins-Acctng\R&K\SpaceX\Pictures and Video.zip\Pictures\SPCX2115\W3267\

File Edit View Favorites Tools Help

Add Extract Test Copy Move Delete Info

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REWORK- DISPENSE UPGRADE 06-19-2012	26 966 843	26 770 991	2018-05-22 12:56		
Rework-Added two black lights and supply new lexan side panels 05-15-2013	1 637 243	1 512 215	2018-05-22 12:56		
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CIMG5786.JPG	355 195	352 617	2009-05-20 08:36		
CIMG5787.JPG	353 455	351 114	2009-05-20 08:36		
CIMG5788.JPG	372 372	369 558	2009-05-20 08:36		
CIMG5789.JPG	361 119	358 434	2009-05-20 08:36		
CIMG5790.JPG	346 584	344 130	2009-05-20 08:36		
CIMG5791.JPG	362 879	360 286	2009-05-20 08:36		
CIMG5792.JPG	340 758	338 244	2009-05-20 08:36		
CIMG5793.JPG	342 010	339 402	2009-05-20 08:36		
CIMG5794.JPG	349 213	346 764	2009-05-20 08:36		
CIMG5795.JPG	332 679	330 155	2009-05-20 08:36		
CIMG5796.JPG	345 174	342 708	2009-05-20 08:37		
CIMG5797.JPG	331 630	329 168	2009-05-20 08:37		
CIMG5798.JPG	343 710	341 176	2009-05-20 08:37		
CIMG5799.JPG	324 034	321 270	2009-05-20 08:37		
CIMG5800.JPG	329 904	327 412	2009-05-20 08:37		
CIMG5801.JPG	343 859	341 449	2009-05-20 08:37		
CIMG5803.JPG	323 949	321 432	2009-05-20 08:37		
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1 object(s) selected 43 585 43 585 2009-06-24 15:44

EXHIBIT 67

SPACEX MATERIAL

Revision 1

Provisional Technical Data Sheet

NVOC
Non-VOC Conformal Coating

Product Description

A flexible, moisture cure, conformal coating based on polyurethane technology for the protection of electronic circuitry. NVOC has been specifically designed to eliminate the use of volatile organic solvents and is suitable for use in selective spray equipment.

Features

- Excellent adhesion to a wide variety of substrates
- Wide operating temperature range
- Resistant to mould growth
- Excellent solvent resistance
- Cured coating can be removed with Electrolube Remover Gel (DRG)
- Contains a UV trace for ease of inspection
- Very low vapour pressure

Approvals	**RoHS Compliant (2002/95/EC):**	**Yes**
	IPC-CC-830	**Meets**
Liquid Properties	Appearance:	Amber Liquid
	Specific Gravity (Density) @ 20°C:	1.12g/ml
	Vapour Pressure (Calculated):	< 0.01 KPa
	Solids content:	100%
	Viscosity @ 20°C:	85-95cPs
	Touch Dry:	70 minutes @ 20°C
	(Humidity Dependent)	30 minutes @ 60°C
		20 minutes @ 80°C
	Recommended Drying Time:	36 Hours @ 20°C
		4 Hours @ 60°C
		2 Hours @ 80°C
Dry Film Coating	Colour:	Amber
	Operating Temperature Range:	-60°C to +125°C
	Max Temperature Range (30 mins)	+150°C
	Pencil Hardness	7H
	Flammability:	Meets UL94 V-0
	Thermal Cycling (MIL-1-46058C):	Meets approval
	Insulation Resistance:	> 1 x 10^{13}
	Moisture Resistance (MIL-1-46058C):	Meets Approval

Electrolube, A division of H K Wentworth, Kingsbury Park, Midland Road, Swadlincote, Derbyshire, DE11 0AN
Tel: +44(0) 1283-222111 Fax: +44(0) 1283-550177 www.electrolube.com
BS EN ISO 9001:2000 Certificate No. FM 32082

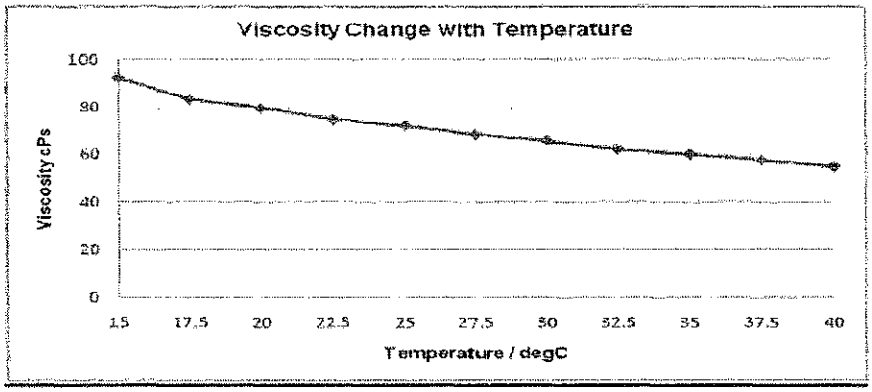
Directions For Use

Substrates should be thoroughly cleaned before coating. This is required to ensure that satisfactory adhesion to the substrate is achieved. Also, all flux residues must be removed as they may become corrosive if left on the PCB. Electrolube manufacture a range of cleaning products using both hydrocarbon solvent and aqueous technology. Electrolube cleaning products produce results within Military specification.
Please refer to the material safety data sheet for health and safety information.

Spraying – Bulk

NVOC is supplied in a ready to use viscosity for spraying.

NVOC is suitable for use in both PVA and Asymmtek Select Coat equipment.



Drying

NVOC can be dried at room temperature or accelerated via drying in either a convection or IR oven. A typical IR profile with the PCB set to a constant temperature of 80°C will achieve an initial cure time of approximately 30 minutes. Increasing the humidity of the surrounding area will also reduce the cure time of the coating.

Cleaning

Electrolube's NVMC has been designed as a suitable cleaner for use with NVOC. Machines should be flushed through thoroughly with NVMC prior to coating use.

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All information is given in good faith but without warranty. Properties are given as a guide only and should not be taken as a specification.
Electrolube cannot be held responsible for the performance of its products within any application determined by the customer, who must satisfy themselves as to the suitability of the product.

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